

# A Study Utilising E-learning Theory, Universal Design for Learning and Multiliteracies for Teaching Practical Irish Genealogical Research Online

By

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A dissertation by practice submitted in partial fulfilment  
of the requirements for MA in Training and Education  
(QQI)

Centre for Promoting Academic Excellence

Griffith College, Dublin

April 2017

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## Abstract

Over the last two decades the world has become increasingly tech savvy. A large majority of people worldwide have access to both the internet and a laptop, smartphone or similar internet supporting device. Under these conditions, online based education, or e-learning, has all the potential to educate people on a global scale. In order to feasibly reach students in the global classroom, with its inherent levels of diversity, an e-learning course needs a robust design that not only supports an online pedagogy, but learner accessibility and inclusivity as well. One subject matter that is in need for such a design is practical Irish genealogical research; as it has both a lack of an e-learning presence coupled with international student demand.

The purpose of this study was to create a sample, online based Irish genealogy course that combines E-learning Theory with the inclusivity and accessibility focused pedagogical approaches of Multiliteracies and Universal Design for Learning. Internationally based students of the course were then surveyed and interviewed to assess the course effectiveness.

The findings reflected that the course was received as highly comprehensible and accessible from the participating students which were domiciled in six different countries. Based on the implications from these results, future work should be to have the same design applied to a synchronous e-learning course.

**Keywords:** E-learning Theory, Multiliteracies, Universal Design for Learning, Inclusivity in Education

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## Acknowledgments

I truly thank my wife Sharon for all her great patience and support; which without, my completion of this entire masters would not be possible.

I thank all the faculty members of the Masters in Education and Training Programme at Griffith College for all their support; particularly my professors and dissertation supervisor.

Most especially, I wish to thank both my parents, Philomena and Thomas, who left this island over fifty years ago; yet always remained proud of where they came from. It was because of them I had the ability to return, a generation later, and become part of this great country and its culture. A fact of which, I too, am very proud.

## Chapter 1: Introduction

With the proliferation of internet supportive technology in every aspect of modern day society, one area facing a potential revolutionising impact is education. The New Media Consortium, a community of top universities and academics, state in their Horizon Report: 2016 Higher Education Edition, that: “Today’s digital landscape has created additional learning opportunities for students outside of brick and-mortar institutions and universities are gradually changing to accommodate evolving expectations. In addition to advancing cultures of innovation... there are other signs that higher education is undergoing a long-term transformation” (Johnson et al., 2016, p.10). Currently, the point where technology and education meet is e-learning. E-learning, defined by Clark and Mayer (2016), is “instruction delivered on a digital device such as a computer or mobile device that is intended to support learning.” This not a necessarily a new concept; however, with the reach and capability of modern technology, the potential of e-learning is greater than it has ever been. The Council of Independent Colleges refers to the ever changing state of e-learning as “an amorphous phenomenon, comprising technologies, pedagogies, and institutional structures that are both well established and rapidly emerging” (Katz, 2016, p. 2). Of the many possibilities that e-learning may hold, a particularly significant one is that it may serve as the modern world’s panacea for some of the ills associated with traditional learning; particularly student accessibility. Traditional education, institutions requiring physical attendance, is still an expensive commodity in many regions of the world; only attainable by those who can afford it. E-learning can be far more affordable as it circumnavigates the high overhead costs required of traditional education by not needing a physical edifice in every location where the course has students and by being able to accommodate a larger classroom size (Moore et al., 2011).

As affordability and wide spread reach does improve an e-learning course accessibility, it does not remove all impediments for a reaching a global student base. In order to be further accessible to all students, considerations must be made for inclusivity regarding all the cultural and social differences encountered when bringing together such a diverse classroom. Even with the wide reaching capabilities of the internet; if a course’s material is created only in the context of a particular



culture; typically the same culture of the course creator; it will fall short of its potential (Grove et al., 2000). As cultural and social diversity is inherent to having a global classroom; based on the volume of students an e-learning course can accommodate, another inherent aspect will be students of different capabilities including those with special needs. This is true for traditional education, but due to the limiting factors of a physical classroom, the percentages would be significantly smaller. Fortunately, there are two pedagogical approaches to address these elements: Multiliteracies and Universal Design for Learning. One such subject matter that is in a position to benefit from an e-learning platform that supports inclusivity and accessibility is practical Irish genealogical research, as it commands a diverse, global student base (Grenham, 2012).

Emigration has been a strong feature of Irish culture for centuries; the result of this diaspora has created populations with a genealogical connection to Ireland stretching across the globe. Countries within the Anglosphere claim the highest percentages of Irish ethnicity; some examples being: the U.S. at thirty-four million, Canada at three and a half million and Australia at two million. The total figure for Irish ethnicity worldwide is approximately seventy million; this does not include the over four million people who live in Ireland (Bowden, 2016). This in turn has created a global demand for Irish genealogical research. A reflection of this demand can be seen in the Irish genealogy industry: the well-known genealogy research site Ancestry.com turned a profit of \$211.4 million in the first quarter of 2016 (Borrman, 2016). Irish genealogical research is not as complex and challenging as to prohibit non-professionals from undertaking research themselves. There is also a large amount of Irish genealogical records available online for free or at a cost that is substantially less expensive than hiring a genealogist (Osborn, 2012). With training and education in the subject, anyone from any background can pursue their own genealogical research. An online based course would be suitable for this purpose as the nature and practicalities of the genealogical research process is suitable for the online space. Because of the nature of course material, the international course demand and the diversity of the resulting global classroom; students of an online course in practical Irish genealogy are fittingly positioned to benefit from an amalgamation of e-learning theory, Multiliteracies and Universal Design for Learning.

At the time of this paper, there are only a small number of online Irish genealogy courses; none of which have a course design to encompass international students.

In this study, the author examines the outcome of combining E-learning Theory with Multiliteracies and Universal Design for Learning as a way to achieve an online Irish genealogical research course that is suitable for international and varied student types. This was done via the creation of a sample course, entitled “Practical Irish Genealogical Research,” delivering the course online to students from a variety of different countries and then utilizing two rounds of feedback from volunteer students to develop the course and analyse its effectiveness.

Because of variables regarding the key outcomes of E-learning Theory, Multiliteracies and Universal Design for Learning coupled with the diversity of the students involved; the author used quantitative methods; questionnaires and structured interviews, to gather data for analysis (O’Keefe, 2016).

The second chapter of this study explores E-learning Theory, Universal Design for Learning and Multiliteracies and how suitable they are for amalgamating into a single course. The third chapter examines the decisions made regarding each factor in creating the sample course. Chapter four analyses and discusses the feedback from two sessions of volunteer students’ questionnaires and interviews and the impact of the course design and effectiveness.

The significance of this study is that an online course in practical Irish genealogical research combining E-learning Theory with Multiliteracies and Universal Design for Learning does not exist. If successful, the work here could have implications for other subject matters that can be taught online that have wide spread, international demand.

This thesis focuses on the blending of the three pedagogical approaches within the context of teaching Irish genealogical research in a diverse, online classroom. There are some limitations regarding this. Due to the nature of the subject itself: even though international; it is inherently limited to the English speaking world and the descendants of the Irish diaspora within it. Furthermore, e-learning courses can be delivered either synchronously (live) or asynchronous (on demand). This course is delivered asynchronously and the outcomes can only be applicable to this course distribution method.

## Chapter 2: Evidence of Research

### 2.1 Compiling Subject Matter Authoritative Literature

The prerequisite of creating the course was identifying and utilizing the authoritative literature of the course's subject matter; Irish genealogical research. This was investigated via consulting subject matter experts (SME) in the Genealogical Society of Ireland, based in Dún Laoghaire, Dublin. The SMEs consisted of society members and professional genealogists. Through this research, it was identified that the authoritative reference material was the fourth edition of "Tracing Your Irish Ancestors: The Complete Guide" by acclaimed Irish genealogist John Grenham. This literature was used as the prominent source material for the eLearning course. The next step was to design and create the e-learning course to deliver this material.

### 2.2 E-learning Theory

E-learning theory supplied the bedrock of the course design. The rationale for this being that the course is created to be delivered in the online environment. According to Clark and Mayer (2016, p. 25) "The challenge in e-learning, as in any learning program, is to build lessons in ways that are compatible with human learning processes." This concept is encapsulated in the Cognitive Theory of Multimedia Learning; which is at the core of E-learning Theory and its principles. The Cognitive Theory of Multimedia Learning has three principles regarding how people learn from multimedia style lessons: Dual Channels; which states that learners process visual material separate from audio material; Limited Capacity; learners are limited to taking in only small amounts of information in each of these channels at one time and Active Processing; learning is achieved by the learner when they use the relevant cognitive processes during the session. E-learning Theory expands on these factors through various principles that, when applied properly, are crucial to an online course be designed successful. The Multimedia Principle requires the course material to contain a mix of audio and visuals. "Multimedia presentations can encourage learners to engage in active learning by mentally representing the material in words and in pictures and by mentally making connections between the pictorial and verbal representations" (Clark and Mayer, 2016, p. 71). As much as this seems fairly straight forward for a course designer to incorporate, there are ways that this can go wrong. The Coherence Principle is the best guide for avoiding this;

as this principle requires the removal of “any words, graphics, or sounds that are not central to the instructional goal of the lesson” (Clark and Mayer, 2016, p. 151). The goal is to not burden the student’s learning process with unnecessary input. The driver for designing the suitable input itself is the Principle of Modality. This principle sets guideline regarding how text, graphics and narration are used to present the course material. According to this principle, narration combined with imagery is overall more beneficial to the learner than written text on the screen. Text, however, is not restricted from eLearning as the Redundancy Principle allows for text and relevant narration as long as there isn’t an image displayed at the same time. As a narrative is an important element of the material, narration tone is important. The Personalization Principle advocates the use of a friendly, conversation tone of voice as imposed to a neutral, formal one. This allows for connection with the learner. “The feeling of social presence, in turn, causes the learner to engage in deeper cognitive processing during learning” (Clark and Mayer, 2016, p. 184). Still considering not overwhelming a student’s learning process, another factor when designing an e-learning course is length. The Segmentation Principle addresses this. This principle states that length of a section is decided by its complexity. Complex material should be broken into smaller, digestible parts based on the number of concepts within the lesson. It is more beneficial for the student to take a lesson in many smaller segments than in a single large one. Finally, there is one other principle to be incorporated once an eLearning course has been created; the Learner Control Principle. This principle requires that the student can control: what sequence they want to take a lesson, the pace of the lesson and the overall navigation of the course material (Clark and Mayer 2016).

### 2.3 Multiliteracies

Multiliteracies is a pedagogical approach to globalization and an increasingly interconnected world (Cope and Kalantzis, 2009). The concept originated as a literacy pedagogy, but has since been expanded outside of that field. “Multiliteracies was adopted to ...address two related trends: increasing cultural and linguistic diversity of learners; and the changing landscape of literacy, including the rise of new technologies” (Simon, 2011, p. 363). Multiliteracies considers how language and other forms of expression are interpreted by people from different cultural backgrounds. The focus is on the importance of being able to make meaning across

these differences. One of the four elements that make up a Multiliteracies pedagogical approach is the concept of Situated Practice. In order for students to learn, the experience has to be authentic. Student will make more meaning if they can immerse themselves into the learning environment. As language alone is not the only medium of expression, the element of Overt Instruction encourages “multimodal” formats in which to make meaning: the common formats being spoken, visual and audio. These multimodal formats make up the landscape of the different literacies used to engage the global, multicultural classroom. Videos with graphics, text and narration all create channels in which to transfer knowledge. Successfully making meaning across a diverse classroom is one goal, the other is ensuring the learners’ develop their own interpretation skills. Critical Framing, the third element of Multiliteracies, aims to address this. Utilizing the space of a diverse classroom, educators can instil in students how to approach and comprehend different dialogues in this environment. The last element, Transformed Practice, brings the learned interpretation skills to fruition. As students are given the skills to interpret and understand across many levels of diversity, the student themselves can then transfer their own concepts to others outside of their cultural background (Cope and Kalantzis, 2009).

#### 2.4 Universal Design for Learning (UDL)

The concept of Universal Design originally came from architecture; buildings were to be designed to allow maximum access and usability for all people. This model has since been applied to learning as a framework (known as UDL) to allow for maximum inclusivity regarding the increasingly diverse student bodies of the modern day. The level of diversity addressed includes cultural and language differences as well as different learner types and people with disabilities (Spencer, 2011). The first of the three principles of UDL, is to Provide Multiple Means of Representation. At the core of this principle is that: as students perceive information in different ways, using multiple methods of presenting the information will reach students more effectively. The most applicable way for achieving this is by using images, speech and text in the course material (CAST, 2011). When using each of these formats, however, there still has to be considerations. To accommodate students who may be at a disadvantage when images are used, there needs to be an audible description of the image or the concept at the same time. When speech is used; there should also be a

level of accompanying text displayed that summarizes the spoken concepts, this is to benefit students who may be at a disadvantage with auditory information. Text can also be an advantage to students who are not native speakers of the course language. Continuing on with this framework's core focus of accessibility and inclusivity, the second principle is to Provide Multiple Means of Action and Expression. This principle seeks to create flexibility by allowing different methods for students to express their understanding. For various cultural, social and physical reasons, some students might find certain channels of expression more useful than others. For example: students should not be limited to only submitted written responses as summative assessment of a lesson; they should also be able to have other forms of expression such as discussion groups or possible one to one feedback sessions with the educator. Online interactive multimedia opens several other channels for expression via forums and presentations (Hall et al., 2012). This principle also takes into consideration the tools necessary for expression. Educators are to ensure that their learning environments can facilitate hardware and software designed for assisting people with special needs. The third and final principle of UDL is to Provide Multiple Means of Engagement. What motivates each student is impacted just as strongly by diversity in the same way it drives the previous two principles. To be inclusive, an educator must have a varied approach to how they engage the student. Autonomy, authenticity and safety are factors sited under this principle as necessary to create engagement in a diverse classroom (CAST, 2011). Students need some level of control over the course material itself. This autonomy can be in regards to elements such as course delivery or timing. A more personal and less formal tone of the educator can instil a sense truthfulness. This, joined with establishing a criticism free, "safe" learning environment, produces a situation where the students will be more motivated to take in knowledge (Hall et al., 2012).

## 2.5 Amalgamating E-learning Theory, Multiliteracies and UDL

There are many compatibilities between the principles of E-learning Theory, Multiliteracies and UDL allowing the development of a course that amalgamates them feasible. E-learning's Multimedia Principle fits well with Multiliteracies' Overt Instruction and the Multiple Means of Representation requirement of UDL. All three advocate course material that is a mix of audio and visuals. The UDL specific requirements within this usage, regarding audible descriptions for images and text

for narration, were allotted for in e-learning via the Principle of Modality and Redundancy Principle, respectively. Situated Practice in Multiliteracies calls for an authentic and immersive learning environment. UDL's Multiple Means of Engagement states that engagement across diverse learners happens when the course provides it students with autonomy, authenticity and non-critical environment. These factors all fit well with the two principles of eLearning: the Personalization Principle in which a states that tone of course narration is to be conversational and the Learner Control Principle, which requires learner control over the pace and distribution of the lessons. Lastly, Multiliteracies via Critical Framing calls for students to be put in a position by the educator to interpret the different dialogues within the classroom and then ultimately be able to translate their own ideas to different dialogues, facilitated by the educator as per Transformed Practice. This dovetails extremely well with the UDL's Principle of Multiple Means of Action and Expression; the provision for different avenues for learners to express their understanding. When juxtaposed to E-learning Theory, there aren't any opposing principles that could cause a conflict or contradiction (Cope and Kalantzis 2009; Hall et al., 2012; Clark and Mayer 2016).

## Chapter 3: Developing the Product

The product created was three lessons of an online course, which amalgamated E-learning Theory, Multiliteracies and UDL, entitled “Practical Irish Genealogical Research.” The three lessons were roughly fifteen minutes each in length and delivered asynchronously.

### 3.1 Deciding Factors for the eLearning Course Delivery Platform

One of the deciding factors for selecting a suitable delivery platform was accessibility. To satisfy this core objective of UDL, a suitable platform had to be one that wasn't restrictive for any students (Hall et al., 2012). Depending on the platform; restrictions for students accessing the course could arise due to their: geographic region; the platform may not be available in certain locations, device hardware; certain platforms require hardware of a particular level and lastly, technical skills; some platforms require an installation process which may prove problematic for less technical savvy students. Based on these factors, the online video sharing website Youtube was selected as the delivery platform. Youtube is also more globally recognized compared to its competitors, such as Vimeo (Smith, 2016).

### 3.2 Impact of Selected Course Delivery Platform

As a course delivery platform, Youtube allowed for maximum accessibility. Youtube being a video sharing website did impact the structure of the eLearning course. The course would have to be asynchronous as Youtube does not allow for live “real time” delivery. This was not seen as a complication as, due to the widespread geographic nature of the student pool, an asynchronously delivered course was best suited to deal with the various times zones. Students could access the course videos at a time that was convenient for them. This further allowed for accessibility and suited the autonomy requirements of the Learner Control Principle, Multiple Means of Engagement and Situated Practice. Under the available configuration, Youtube allowed a maximum of fifteen minutes per video upload. This limited the length of each lesson but it was not an issue as it complied with the information portions of the Segmentation Principle (Cope and Kalantzis 2009; Hall et al., 2012; Clark and Mayer 2016).



### 3.3 Deciding Factors for the eLearning Course Medium

The Multimedia Principle, Overt Instruction and Multiple Means of Representation all identify the importance of audio and visuals in the learning environment. The subject matter of this particular course covered a variety of topics; from history to record keeping; all things that could be fairly complex in regards to presenting within the limitations of an online space. In order to best apply E-learning Theory; the windows office suite program, "Power Point" was selected as the medium for the learning material. Power Point is a presentation program that is based on using a series of individual screens or "slides" to present information. One particular feature of Power Point that made it best fit was its ability to allow for graphics and/or text to be presented along with audio/narration. This was of substantial value to the course as it facilitates applying the audio and visual aspect of the Principal of Modality, the Multiple Means of Representation and the Redundancy Principal. Formatting the material into slides allows learners to process the knowledge in smaller pieces; benefiting the Limited Capacity principle and the Segmentation Principle. The individual slide format furthermore allowed students to pause the video to see all the information on a particular slide, if needed. This serves as an additional avenue to provide for the autonomy needed as per the Learner Control Principle, Multiple Means of Engagement and Situated Practice (Cope and Kalantzis 2009; Hall et al., 2012; Clark and Mayer 2016).

### 3.4 Course Visuals

The course visuals decided for use were text and images only. The images used fell into two categories: to supplement a concept narration or to provide a real world representation of an aspect of the course material. The images selected for the concept supplementation were basic and chosen for their relevance; this was to avoid any misrepresentation or misinterpretation due to different cultural contexts. Text was used as a method to itemize key concepts of the given material. The phrasing of the text was written in a straight forward manner; this was to avoid language complexities that could be a challenge to certain students and keep the tone of the material conversational (Cope and Kalantzis 2009; Hall et al., 2012; Clark and Mayer 2016).

### 3.5 Course Audio

The course audio was decided to be limited to narration only. Background music was decided against as the Coherence Principle advises how a non-essential such as this, could function as a distraction. The tone of the narration was kept light and conversational; this would satisfy the both the tone requirement of the Personalization Principle and the need for authenticity of Situated Practice and Multiple Means of Engagement. This tone does create a relaxed, “safe” atmosphere to the course; a requirement of the latter principal. Even though the narration was of an informal manner, care was taken to avoid shibboleths and idioms that would be culture specific to only a segment of the student base. The narration, when delivered along with the accompanying visuals or text, was done so in accordance with audio, visual and text rules of the Principal of Modality, Redundancy Principal and the Multiple Means of Representation (Cope and Kalantzis 2009; Hall et al., 2012; Clark and Mayer 2016).

### 3.6 Deciding Factors for the Production Tool

A program was needed that would be able to record both the Power Point based lessons and the corresponding narration. Camtasia Studio was selected for this role. Camtasia is a multimedia screen recording program. It has the capacity to record each lesson audio and video as well as edit the video and produce it straight to YouTube.

### 3.7 Ethical Considerations

For the volunteer students of the course; the only ethical concerns were in regards to confidentiality. In order to instil anonymity into the volunteering process from the beginning; a request was posted on an online social media forum. The forum itself does not allow participants to include their personal details or any other identifiable information. Forum participants create a unique screen name and that is all that identifies them within the forum. The author registered with the forum and then posted the request for volunteers. The request specified the nature of the course, the fact that no personal information was required, how to contact the author and the closing date for volunteering. The request did state that volunteers were to provide what country they were from. This was to ensure that the volunteer pool contained students from a variety of different countries. Once volunteers contacted the author individually, they were asked to provide an email address. They were advised by the

author that even though their email address would be kept confidential, they should consider creating a new email address just for the purpose of this correspondence. Once the email was provided, the volunteers were sent the participation sheet and consent form (O’Keefe, 2016).

### 3.8 Delivering the Course

Once the deadline for volunteering arrived, the people who had supplied their email address were divided into two groups; “Group A” and “Group B;” both having nineteen students each. This division was done in a way that ensured an even distribution of the different student domicile countries involved. Group A would be the first to take the course. These students received an email with links to the course on YouTube. They also, separately, received a link to the online questionnaire, to be completed at the course end, and the option for a ten minute interview. Based on their feedback, the necessary amendments were made to the course and then the same process of delivery was repeated again for Group B.

### 3.9 Challenges

One challenge that proved to be a disadvantage of both the production tool, Camtasia Studios, as well as the Youtube platform, was the incorporation of subtitles. Subtitles are an element of UDL that enhances accessibility (CAST, 2011). For students who have English as a second language, being able to read the entire narration creates another avenue of comprehending what the speaker is saying. For students with disabilities; this is true as well. Subtitles are beneficial for the deaf and also helpful for the blind as there are programs that can vocalize text on screen that is not included in the subtitled narration. Creating subtitles in Camtasia Studio was close to prohibitively tedious and time consuming as it had to be done manually. Once these subtitles were created, they were unable to be carried over into the YouTube upload. The end result being that the subtitles would not be visible on the course’s delivery platform. This proved particularly frustrating as one of the volunteer students advised, at their own discretion, that they were legally blind and would benefit from a subtitled course. Fortunately, a way to circumnavigate this issue was discovered. It was remedied by emailing an MP4 video directly to the legally blind student instead of giving them the YouTube link.

Another challenge was incorporating the two principles of Multiliteracies; Critical Framing and Transformed Practice and the Multiple Means of Action and Expression

principle of UDL. There were two significant factors prohibiting this. The Youtube platform, although suited for wide reaching student accessibility, did not have a feature that was robust enough to allow for student interactivity on a level that could facilitate this. An online forum separate from Youtube (the same online forum used to recruit the student volunteers) was considered as a solution, however, this lead to the second obstacle: anonymity. The ethics of this project dictate that the integrity of the volunteer students' anonymity would not be compromised. Even though in an online forum anonymity could be maintained; being that the context of this interactivity would be dialogues around each students' cultural background; this could inadvertently go against student anonymity; as it is can easily turn into that of a personal nature. Rather than let that be a possibility, it was decided that these three principles would not be incorporated into the course. Leaving these out was not considered a substantial issue to the product as their absence was solely due to material reasons and not ideological.

## Chapter 4: Discussion

The e-learning course had two stages of production; an initial stage and a final stage. Both these stages allowed for amendments to the course based on the feedback of the volunteer students via a questionnaire and interview. The questionnaire was designed with ten questions to reflect the desired outcomes of the E-learning Theory, UDL and Multiliteracies elements that were incorporated into the course. The questionnaire used a rating system of one to five; one being the lowest rating (poor) and five being the highest (excellent). Included was an optional comment section for students to state any section they would like to see improved. The interview questions were similarly structured, however, left more room for personalized student feedback.

### 4.1 Initial Stage Process

The initial stage consisted of the first delivery of the course to the selection of students categorized as Group A. This group consisted of students from different countries in the following percentages: sixty eight percent from the US, sixteen percent from Australia, eleven percent from Canada and five percent from the UK.

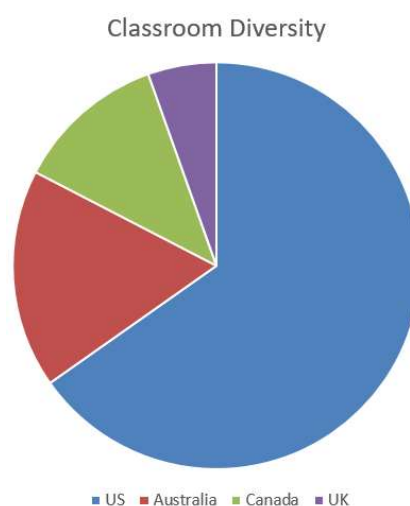


Figure 1 - Student nationalities in Group A

The students had a timeframe of fifteen days to complete the forty-five minute course and submit the feedback.

## 4.2 Initial Stage Questionnaire Feedback

The course proved its ability to be comprehensible within a diverse classroom as crucial aspect was rated highly. This included the course narration, the use of text and graphics and their comprehensibility in regards to what was audible at the time.

1.) Rate how comprehensible the overall course material was.

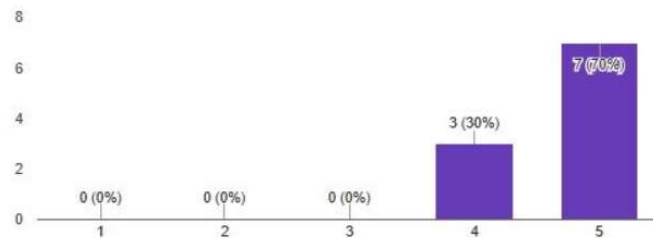


Figure 2 - Course comprehensibility rating from Group A

2.) Rate how comprehensible the narration was in regards to what was visually presented

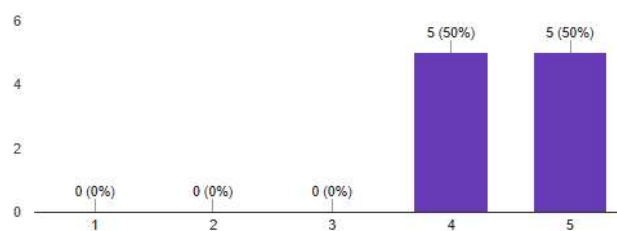


Figure 3 - Course narration regarding visuals rating from Group A

3.) Rate how comprehensible the visual text and graphics were in regards to what was audibly presented.

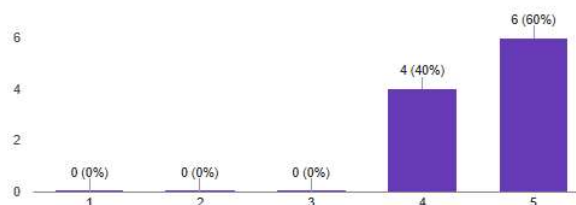


Figure 4 - Course visuals regarding audio rating from Group A

The course was successful in achieving a high level of accessibility.

4.) How do you rate the accessibility of the modules?

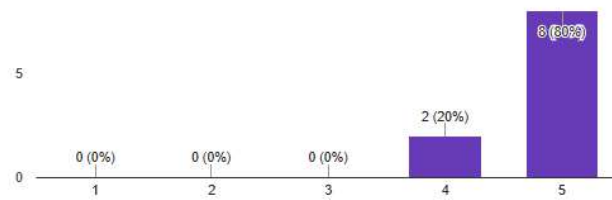


Figure 5 - Course accessibility rating from Group A

The way the modules were paced was well received.

5.) How do you rate the pace at which each module delivered the information?

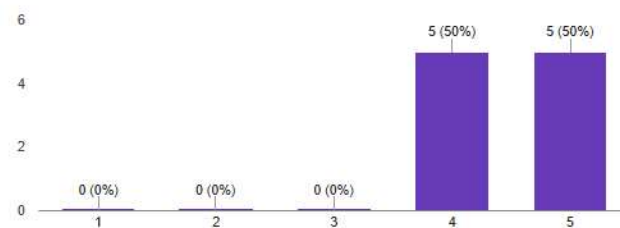


Figure 6 - Course pace rating from Group A

The level of control in the delivery of information in each lesson received mostly high ratings.

6.) How do you rate your level of control in the delivery of the information in each module?

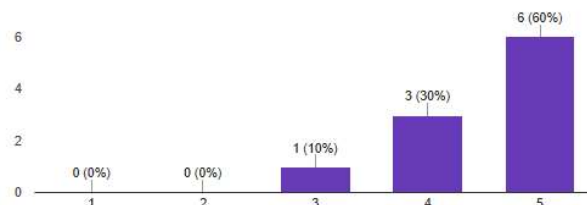


Figure 7 - Student control rating from Group A

Student engagement is critical in E-learning, Multiliteracies and UDL (Cope and Kalantzis 2009; Hall et al., 2012; Clark and Mayer 2016). The course's ability to keep student interest received slightly mixed ratings; forty percent of students rated this aspect of the course as middle of the scale. The remaining students did rate this higher.

7.) How do you rate the course's ability to keep your interest?

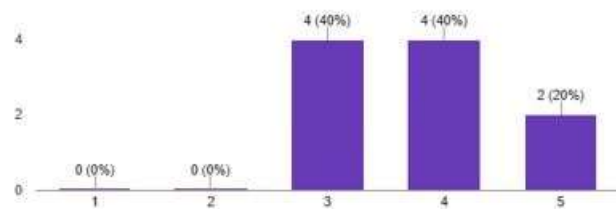


Figure 8 - Student interest rating from Group A

Similarly, the material presented received mixed ratings. Thirty percent of students found this aspect of the course average. The remaining students, however, gave it a higher rating.

8.) How do you rate the variety of the course material presented?

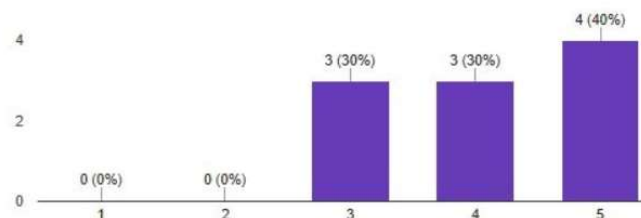


Figure 9 – Course variety rating from Group A

The course was able to smoothly transition from each topic within the lessons as this received fairly high ratings from the students.

9.) How do you rate the transition of each topic within the modules?

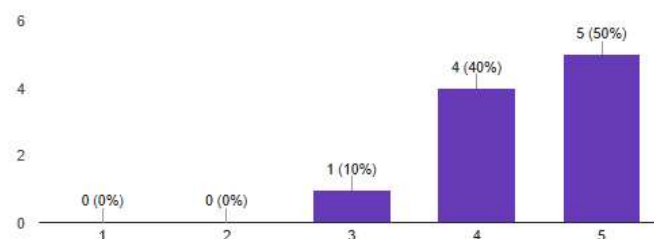


Figure 10 – Lesson flow rating from Group A



Lastly, the students were very satisfied, overall, with the course.

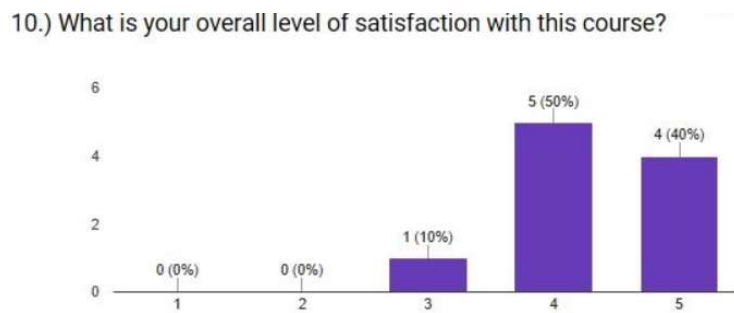


Figure 11 – Student satisfaction rating from Group A

The feedback section of the questionnaire varied from general comments about the content to immaterial remarks about the course. One piece of feedback that was recurring was the sound quality of the narration in the first lesson. Many students stated that it was choppy and distorted at times. This factor was not reflected in the survey section as all audio related questions received high ratings. The fact that it was mentioned by a number of students was enough to warrant amending this for the next stage of the production.

#### 4.3 Initial Stage Interview Feedback

A student from the US volunteered to be interviewed. The interview took a total of fifteen minutes. In this time, the interviewee was asked six structured, open-ended questions regarding the course. Their response was that they found the lessons well laid out and easy to follow. The course was well-paced and the lessons were in just the right size to be taken in. The interviewee cited that because the course was on Youtube, the interface very user friendly and caused no issue with access. They really liked the presentation style; they found the visuals particularly appealing. They felt the text bullet points and the graphics were very helpful with understanding the concepts within the lessons. There wasn't any feature that they could say they particularly didn't like. They found the overall course well done and very useful. They found the internet links the course provided very useful as they could explore themselves. There was nothing they did not like about the overall course. The interviewee said that the only improvement would be to go more in depth with a particular topic in the second lesson. Due to the feedback in the questionnaires, the author (and interviewer) asked if they had any issue with the sound quality; particularly in the first lesson. The interviewee said that they had no issue at all with this.

#### 4.4 Initial Stage Course Amendments

To implement the necessary changes based on the feedback; Lesson One was recorded again. It was ensured that the audio was of a better quality. The remaining aspect of the lesson; content, pace and visuals were left the same.

#### 4.5 Initial Stage Reflections

With the feedback from the first round of questionnaires and interview; the overall perception by the author was that this stage of the e-learning course was successful in its objectives of reaching a diverse classroom using the three pedagogical approaches. This belief was reinforced by the fact that the lowest rating on the questionnaires was still only a middle rating and no lower. There were no significant responses in the data that reflected an issue with the design of the course. The only issue that had to be amended was the audio quality, which was more than likely due to using an improper microphone set up.

#### 4.6 Secondary Stage Process

The secondary stage consisted of the delivery of the amended course to the selection of students categorized as Group B. This group consisted of students from different countries in the following percentages: sixty-three percent from the US, eleven percent from Australia, eleven percent from Canada, five percent from the UK, five percent from South Africa and five percent from New Zealand. It must be acknowledged that this difference in sample size may have the potential to impact the data.

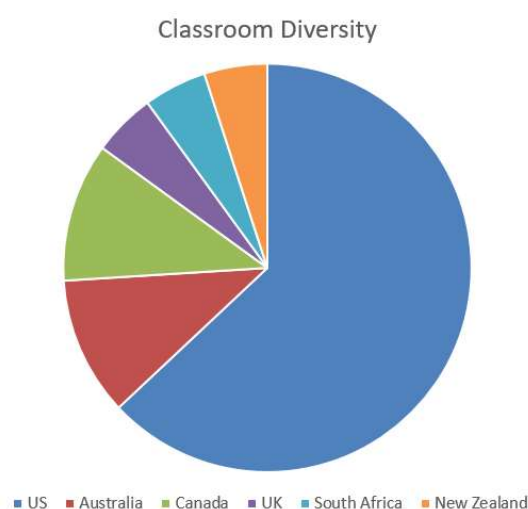


Figure 12 - Student nationalities in Group B

Just as with the previous group, this group of students had a timeframe of fifteen days to complete the forty-five minute course and submit the feedback.

#### 4.7 Secondary Stage Questionnaire Feedback

The feedback from the secondary stage questionnaires had some similarities to the feedback from the initial stage, however, this round of feedback had a significantly more solid response in questions that in the initial round had returned a mixed spectrum of results.

The overall comprehensibility of the amended course was rated highly; this was very similar to the initial stage feedback. The course narration was rated higher than it was in the initial stage feedback; this could be a reflection of the new recording of Lesson One.

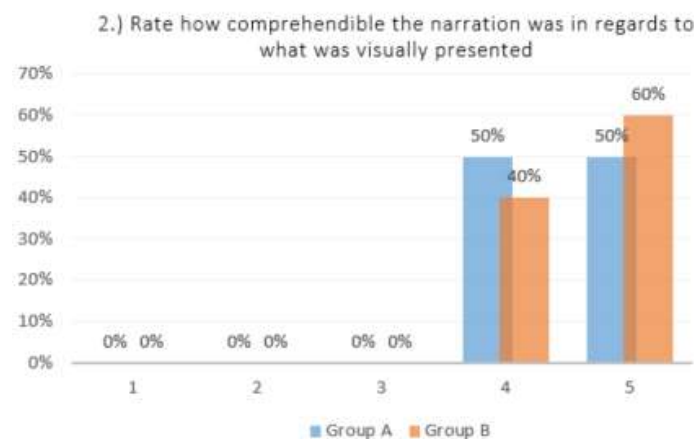


Figure 13 - Course comprehensibility ratings from Group A and Group B

The use of text and graphics and their comprehensibility in regards to what was audible at the time was rated similarly to the initial stage feedback.

Interestingly, the accessibility of the course and the pace of which each lesson delivered its information, which was not changed at all for either, was rated slightly lower for both than in the initial stage.

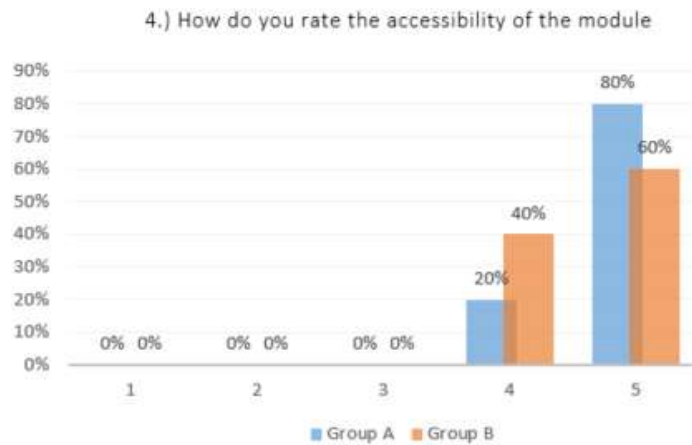


Figure 14 - Course accessibility ratings from Group A and Group B

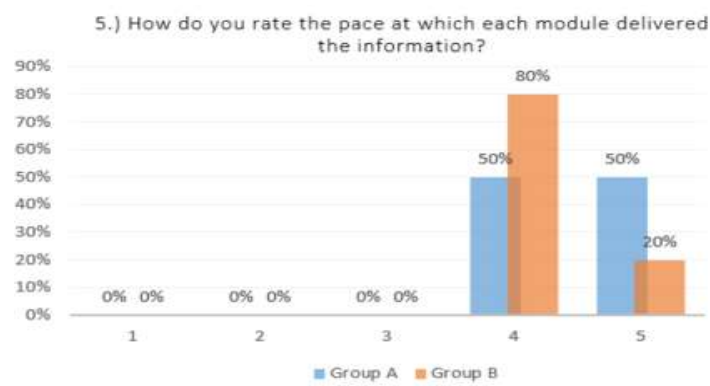


Figure 15 - Course pace ratings from Group A and Group B

In the first round of feedback, the level of control in the delivery of information in each lesson received results across three ratings; in this round, the results were rated higher.

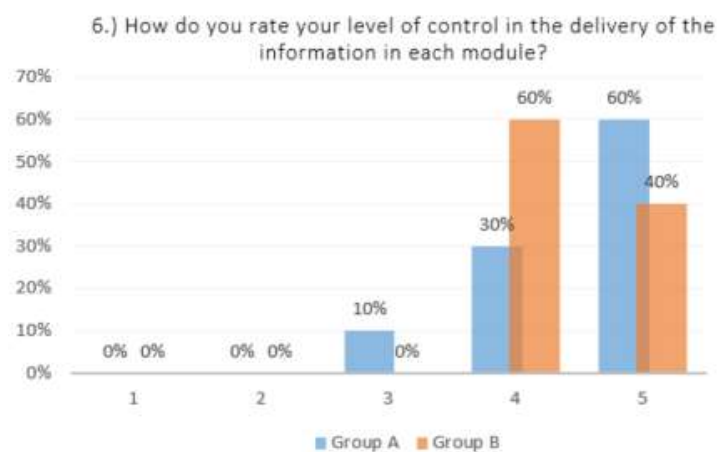


Figure 16 - Course control ratings from Group A and Group B

The course's ability to keep student interest reflected a solid improvement in this round of feedback compared to the mixed response of the initial round. This could be resulting from the sound quality improvement of the second recording of the first lesson as it may have served as a distraction in the initial round.

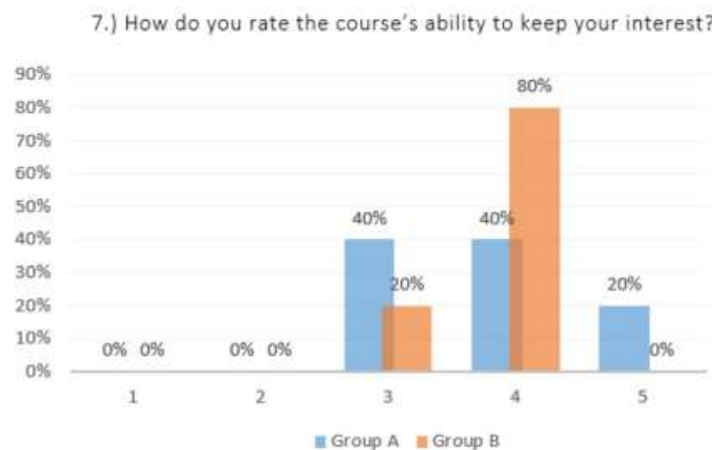


Figure 17 - Student interest ratings from Group A and Group B

The variety of the course material received fairly similar ratings as the first round.

The transition of each topic within the lessons was another piece of feedback that reflected a noticeable improvement compared to the mixed ratings of the previous round. There was no actual change made to the material to have influenced this.

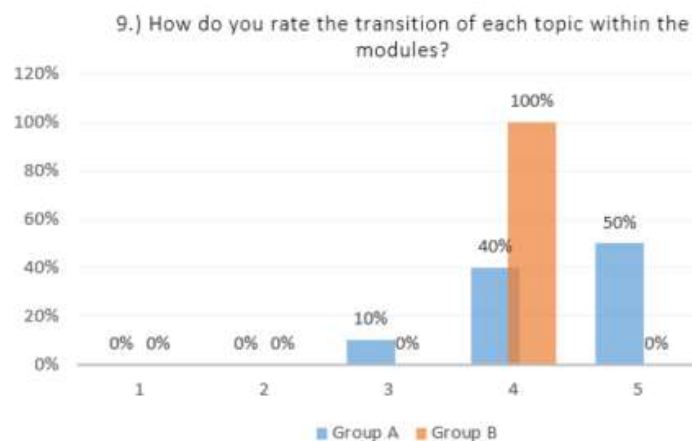


Figure 18– Lesson flow ratings from Group A and Group B

The last question regarding the overall satisfaction with the course received fairly higher ratings then in the last round. This could be resulting from the improvement of audio quality in the first lesson.

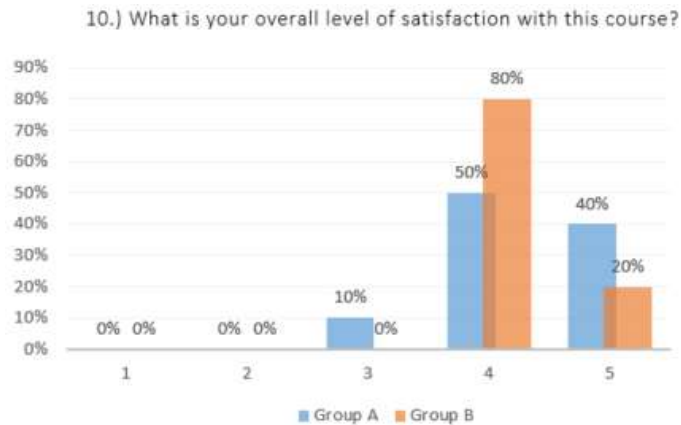


Figure 19 – Student satisfaction ratings from Group A and Group B

All students provided feedback in the comment section of the questionnaire in this round. Like the previous round, the feedback was varied, but was mostly general commentary and not related to the course design. Interestingly enough, the only relevant feedback in this section was, again, related to the sound quality of the narration. This time however, it was Lesson Two that had the issue. This was the only substantial criticism of the secondary stage course and was therefore decided that it needed to be amended.

#### 4.8 Secondary Stage Interview Feedback

The interviewee in this round was from South Africa. The interview took a total of ten minutes. The interviewee was asked the same six structured, open-ended questions as in the first round. The feedback from this interview strongly paralleled the feedback from the first. The interviewee stated that their overall experience with each lesson was positive. They did find the sound quality of lesson two to be poor.

Regarding any barriers comprehending the material or with using the interface itself, they responded that there was no issue with this. They found that the material was presented in a way that was easy to follow. Within the lessons themselves, the flow from one topic to another was done really well. Just as in the first round interview, the Youtube interface proved again to be accessible and easy to use. They said there wasn't any phrasing that was unrecognizable. All aspects of the material was relatable. The interviewee really liked how the graphics were used. The pictures really helped reinforce the information being explained. Just as with the first round interview, there wasn't any feature that this interviewee could say they particularly didn't like. They felt there was nothing that they disliked about the course, but there was nothing they particularly liked strongly enough to mention. Similar to the first

interview feedback, the interviewee said they would like more in depth coverage with a few topics mentioned in the third lesson.

#### [4.9 Secondary Stage Amendments](#)

Based on this round of feedback, Lesson Two was recorded again to capture a higher quality of narration. All other elements in the lesson remained the same.

#### [4.10 Secondary Stage Reflections](#)

After receiving the second set of feedback, the author was very satisfied with the outcome of this stage of the course development. Both rounds of the feedback were very positive and the amendments needed to the course did not involve a severe restructuring of the course material or design.

## Chapter 5: Conclusion

The aim of this study was to create an Irish genealogical research e-learning course that was suitable for an international and diverse student body. The study sought out to achieve this by combining E-learning Theory with Multiliteracies and Universal Design for Learning. The success of achieving this aim was measured using feedback of the different elements of these pedagogical approaches that were incorporated into the course and the student satisfaction with the course itself.

### 5.1 Findings

Based on feedback data from the questionnaires and interviews, the created e-learning course was successful in reaching students from many different cultural backgrounds; spanning across six different countries in this study. All the students surveyed in the course reported being able to fully comprehend the material. The same students all reported high levels of satisfaction with the course. The blending of E-learning Theory with Multiliteracies and UDL was successful as all intended outcomes of these elements received high ratings. There were no instances of one being less evident than another.

### 5.2 Reflections on the Product

The author found creating and developing the product rewarding. The processes involved were challenging at times, however, the positive feedback of the student volunteers from the onset was very encouraging.

### 5.3 Suggestions for Further Development

A next step in development of the course would be to allow it to have subtitles across all three lessons. As this study was based on an asynchronously designed e-learning course; another area for further development would be to apply the same course design to a synchronous course. This would be a sizable undertaking as it would bring a significant amount of further consideration regarding such factors as the delivery platform and finding a live lesson time that is accessibly feasible for students located throughout the world.



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## Appendices

### Appendix 1

#### Final Product

##### Lesson 1:

[https://www.youtube.com/watch?v=-w\\_mgpB4ufk](https://www.youtube.com/watch?v=-w_mgpB4ufk)

##### Lesson 2:

<https://www.youtube.com/watch?v=1t91xuWTa-U&t=3s>

##### Lesson 3:

<https://www.youtube.com/watch?v=PFFBXbWLAAs&t=5s>

Participant Information Sheet

Dear Volunteer,

My name is Thomas McErlean and I am pursuing a Masters in Training and Education. As part of my dissertation, I have created a sample eLearning course and need feedback as part of my study.

If you decide to take part in my study; the following will happen:

1. You will be asked to complete a feedback questionnaire upon completion of the course:

1 A. The questionnaire will be anonymous.

1 B. The completed questionnaire will be kept in a digitally secure location and will be destroyed after a year.

2. You may be asked to complete an interview upon completion of the course, if so:

2 A. The interview will be arranged for your convenience

2 B. The interview will be recorded. The interview will last 10 mins.

2 C. The interview will be about your feedback of the sample course and will be anonymous.

2 D. I will listen to the recording and gather the necessary information. The recordings will be kept in a digitally secure location and will be destroyed after a year.

You do not have to take part in this study. You can refuse to take part or withdraw from the research at any time without giving a reason.

At a later date if you have any concerns about the study or what you said during your interview/ feedback; you can contact me at [*researcher email address removed for confidentiality*].

Thank you for reading this letter.

Yours faithfully,

Thomas McErlean

## Consent Form

I am Thomas McErlean and I am pursuing a Masters in Training and Education. The purpose of this study is to create a unique eLearning course that combines eLearning theory along with inclusivity teaching theories. As a participant in this study; I will be needing you to complete the three training modules; each fifteen minutes long, and then submit feedback. By doing so, it will help inform the design of the course. By doing so, you will be receiving free training in Irish genealogical research methods.

All feedback information will be anonymous and kept in a digitally secure location.

Only I, Tom McErlean and my dissertation supervisor, Peter Gillis will have access. As the information will be gathered anonymously; there will be no potential for any identifiable participant information to be in any published material.

Please be advised: taking part in the study is voluntary, and there will be no consequences for withdrawing.

Any questions regarding the research can be directed to: Thomas McErlean at *[researcher email address removed for confidentiality]*.

## Appendix 4

### Questionnaire

Please complete this questionnaire upon completion of this course. The data collected is completely anonymous and is for the purpose of assessing and improving the course.

On a scale of 1 to 5, 1 being the lowest rating and 5 being the highest rating, please rate the following regarding this course:

- 1.) Rate how comprehensible the overall course material was.
- 2.) Rate how comprehensible the narration was in regards to what was visually presented.
- 3.) Rate how comprehensible the visual text and graphics were in regards to what was audibly presented.
- 4.) How do you rate the accessibility of the modules?
- 5.) How do you rate the pace at which each module delivered the information?
- 6.) How do you rate your level of control in the delivery of the information in each module?
- 7.) How do you rate the course's ability to keep your interest?
- 8.) How do you rate the variety of the course material presented?
- 9.) How do you rate the transition of each topic within the modules?
- 10.) What is your overall level of satisfaction with this course?

Please comment if there is anything you wish to see improved; please state the module and the improvement needed.

## Interview Questions

- 1.) Describe your overall experience with each module.
- 2.) What were the barriers with comprehending the material or using the interface itself?
- 3.) Was there anything in the course material that seemed out of place or something you could not relate to?
- 4.) What feature of the material did you like the most and which did you not like?
- 5.) Overall, what did you like and not like about the course in its entirety?
- 6.) What do you think needs to be improved with a module or the course itself?